

MANUAL

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DOE SAFETY OVERSIGHT MANUAL



U.S. Department of Energy
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INITIATED BY:
Office of Environment, Safety and Health

DOE SAFETY OVERSIGHT MANUAL

1. PURPOSE.

This Manual defines responsibilities and processes to implement the environment, safety and health (ES&H) requirements of DOE O 226.1, *Implementation of Department of Energy Oversight Policy*, dated 9-15-05, and includes information needed by DOE Headquarters line management and field elements to develop and implement a safety oversight program.

2. CANCELLATION. None

3. APPLICABILITY AND EXCLUSIONS.

- a. This Manual is consistent with the applicability and exclusion provisions of DOE O 226.1, *Implementation of Department of Energy Oversight Policy*.
- b. The responsibilities and requirements of this Manual apply only to DOE Headquarters and field elements. This Manual does not apply to DOE contractors.
- c. Safety oversight as used in the context of this Manual includes oversight of the environmental protection systems and controls that are required to meet DOE, federal or state requirements.
- d. The information and oversight processes contained in the Manual applicable to DOE line management may be applied to other disciplines or functional areas where DOE oversight must be conducted, including safeguards and security, cyber security, emergency management, and business operations.

4. SUMMARY.

- a. The Manual provides responsibilities and processes to implement the environment, safety and health (ES&H) requirements of DOE O 226.1.
- b. The Manual is consistent with DOE's Integrated Safety Management System (ISMS) and Quality Assurance (QA) program requirements. The requirements of the Manual and their interactions and connections to provisions of ISMS and QA are defined in the Manual where appropriate.
- c. The Manual contains the tools needed by DOE Headquarters line management and field elements to develop, prioritize, and implement a safety oversight program.
- d. The tools are flexible to accommodate the diverse missions and management prerogatives of DOE sites and facilities.

- e. The tools are intended to be used in an integrated and collaborative manner so that DOE line management safety oversight is developed and implemented by using relevant safety information from all material sources, including contractor, site, line management, DOE Headquarters, independent oversight, and external oversight.
5. CONTACT. Refer questions to the Office of Environment, Safety and Health at 301-903-0104.

BY ORDER OF THE SECRETARY OF ENERGY:

CLAY SELL
Deputy Secretary

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CHAPTER I. INTRODUCTION

1. PURPOSE.

- a. To fulfill nuclear, worker safety and environmental protection regulatory responsibilities under the Atomic Energy Act, DOE must establish and ensure that operations are conducted in accordance with regulatory and contractual requirements.
- b. As part of a program to ensure that requirements are implemented and complied with, DOE conducts different types of oversight at various levels within the DOE organization.
- c. While the basic principles of DOE oversight are long established and deeply rooted, DOE recently instituted a formalized safety oversight program as defined in DOE O 226.1, Implementation of Department of Energy Oversight Policy.
- d. This Manual provides responsibilities and processes to implement the environment, safety and health (ES&H) requirements of DOE O 226.1.
- e. The Manual is consistent with DOE's Integrated Safety Management System and Quality Assurance Program requirements.
- f. It contains the tools needed by DOE Headquarters line management and field elements to develop, prioritize, and implement a safety oversight program using operational and safety performance information.
- g. These safety oversight tools (i.e., safety information programs (SIPs), integrated safety oversight plans (ISOPs), corrective action programs (CAPs), and criteria and review approach documents (CRADs)) are flexible to accommodate the diverse missions and management prerogatives at DOE sites and facilities.

2. DEFINITIONS.

- a. Corrective Action Program—a formal method to document, resolve, and manage DOE safety violations, deficiencies, and observations.
- b. Criteria and review approach document—a standard written procedure consisting of performance objectives, criteria, and lines of inquiry, for performing safety oversight.
- c. DOE safety oversight—activities performed by DOE organizations to determine whether safety programs, safety systems and controls, and management systems (including assurance and oversight systems) are conducted effectively and in compliance with environment safety and health requirements; as examples, includes operational awareness activities, onsite reviews, assessments, self-assessments, and performance evaluations of DOE contractor and Federal programs or facility safety structures, systems and components.

- d. Deficiency—failure to meet commitments for safety improvements, performance criteria or specifications, or required upgrades to structures, systems, components or safety management programs.
- e. Good practice—an item or activity that is particularly noteworthy.
- f. Graded approach—means the process of ensuring that the level of analysis, documentation, and actions used to implement or comply with a requirement are commensurate with—
 - (1) The relative importance to safety, safeguards and security;
 - (2) The magnitude of any hazard involved;
 - (3) The life cycle stage of a facility;
 - (4) The programmatic mission of a facility;
 - (5) The particular characteristics of a facility;
 - (6) The relative importance of radiological and nonradiological hazards;
and
 - (7) Any other relevant factor.
- g. Integrated safety oversight plan—a formal method to document, coordinate, and integrate DOE safety oversight activities.
- h. Observation—a condition or practice that does not provide or promote effective protection of the health and safety of the public, workers, or the environment but is not directly linked to either a requirement or established performance criterion; an “opportunity for improvement.”
- i. Operational awareness—field element and DOE Headquarters line management activities that include walkthrough, work observation, document review, meeting attendance and participation, and routine interaction with DOE contractor workers and management with a goal of improving line management knowledge of contractor operations and work progress, effectiveness of contractor internal oversight programs, and contractor safety performance.
- j. Reactive oversight—accident investigation, employee concerns investigation, allegation followup, operational readiness review, and performance measurement analysis and event reporting carried out by a DOE field element and/or Headquarters line management in response to a specific event, condition, or special request.

- k. Routine oversight—a planned activity, independent assessment, management assessment, self-assessment, document review, evaluation, inspection, test, check, surveillance, work observation, appraisal, audit, and walkthrough the purpose of which is to document whether items, processes, systems, or services meet specified requirements and perform effectively.
- l. Safety information program—a formal system for collecting, analyzing, and categorizing safety/performance information that is the basis for management action.
- m. Violation—failure to meet a contractual, regulatory, or technical safety requirement.

CHAPTER II. DOE SAFETY OVERSIGHT OVERVIEW

Safety oversight at DOE is multi-faceted. As established by DOE O 226.1, its basic framework consists of three internal tiers and one overlaying component. Each of the three tiers consists of oversight and oversight-related sub-parts. Independent Oversight overlays the three tiers and probes all three to verify that performance criteria are met and to determine the effectiveness of program implementation.

1. TIER 1—DOE CONTRACTOR SAFETY OVERSIGHT.¹

- a. DOE contractors conduct oversight of the sites, facilities, and activities that they manage, design, build or operate on behalf of DOE.
- b. Contractors are primarily responsible for the safety of their activities.
- c. Contractors must conduct oversight to ensure implementation of and compliance with DOE environment, safety and health requirements and related contract provisions.
- d. Typical DOE contractor safety oversight—
 - (1) confirms that work is performed in accordance with DOE requirements, applicable contract provisions, DOE approved safety bases, approved safety management programs and processes, and work control processes and procedures;
 - (2) evaluates the effectiveness of safety management system implementation;
 - (3) observes hands-on work and implementation of procedures and processes at the worker level;
 - (4) implements a contractor self-assessment program; and
 - (5) executes a comprehensive and integrated contractor assurance system in accordance with DOE O 226.1, Appendix A.

2. TIER 2—DOE FIELD ELEMENT SAFETY OVERSIGHT.

- a. DOE field elements conduct oversight of DOE contractor activities to maintain field element management operational safety awareness, to address and resolve site vulnerabilities and safety issues, and to confirm contractor implementation of—

¹ Although this Manual only applies to DOE Headquarters and DOE field element safety oversight, it can provide an oversight process or assessment approach that can be used by DOE contractors to help ensure operational safety.

- (1) DOE safety requirements,
 - (2) related contract provisions,
 - (3) approved safety bases,
 - (4) approved safety management programs,
 - (5) work controls and procedures, and
 - (6) mission objectives.
 - b. DOE field elements self-assess their own operational awareness and oversight activities.
3. TIER 3—DOE HEADQUARTERS SAFETY OVERSIGHT.
 - a. DOE Headquarters performs oversight of field element and contractor activities to—
 - (1) maintain confidence that the field element is carrying out its responsibilities for safety management and contractor oversight,
 - (2) ensure that vulnerabilities affecting safe operations at the site are addressed and timely resolved, and
 - (3) ensure systemic safety issues affecting the DOE complex are identified and addressed.
 - b. Headquarters contractor oversight complements field element oversight by evaluation areas where the field element has not looked or where performance or vulnerability indicates the need for oversight beyond the scope of that conducted by the field element.
 - c. DOE Headquarters line management self-assess their own activities.
 - d. Additionally, DOE Central Technical Authorities (CTAs) in NNSA and Energy, Science and Environment (ESE) provide centralized technical expertise and operational awareness to ensure adequate and proper implementation of and compliance with nuclear safety policy, requirements, and standards.
4. INDEPENDENT OVERSIGHT provides DOE line management, Congress, and other stakeholders with an independent evaluation of the effectiveness of DOE policy and line management performance in—
 - a. safeguards and security;

- b. cyber security;
- c. emergency management;
- d. environment, safety and health; and
- e. other critical functions of immediate interest to the Secretary, the Deputy Secretary, or the Administrator of the National Nuclear Security Administration (NNSA).

CHAPTER III. RESPONSIBILITIES AND REQUIREMENTS

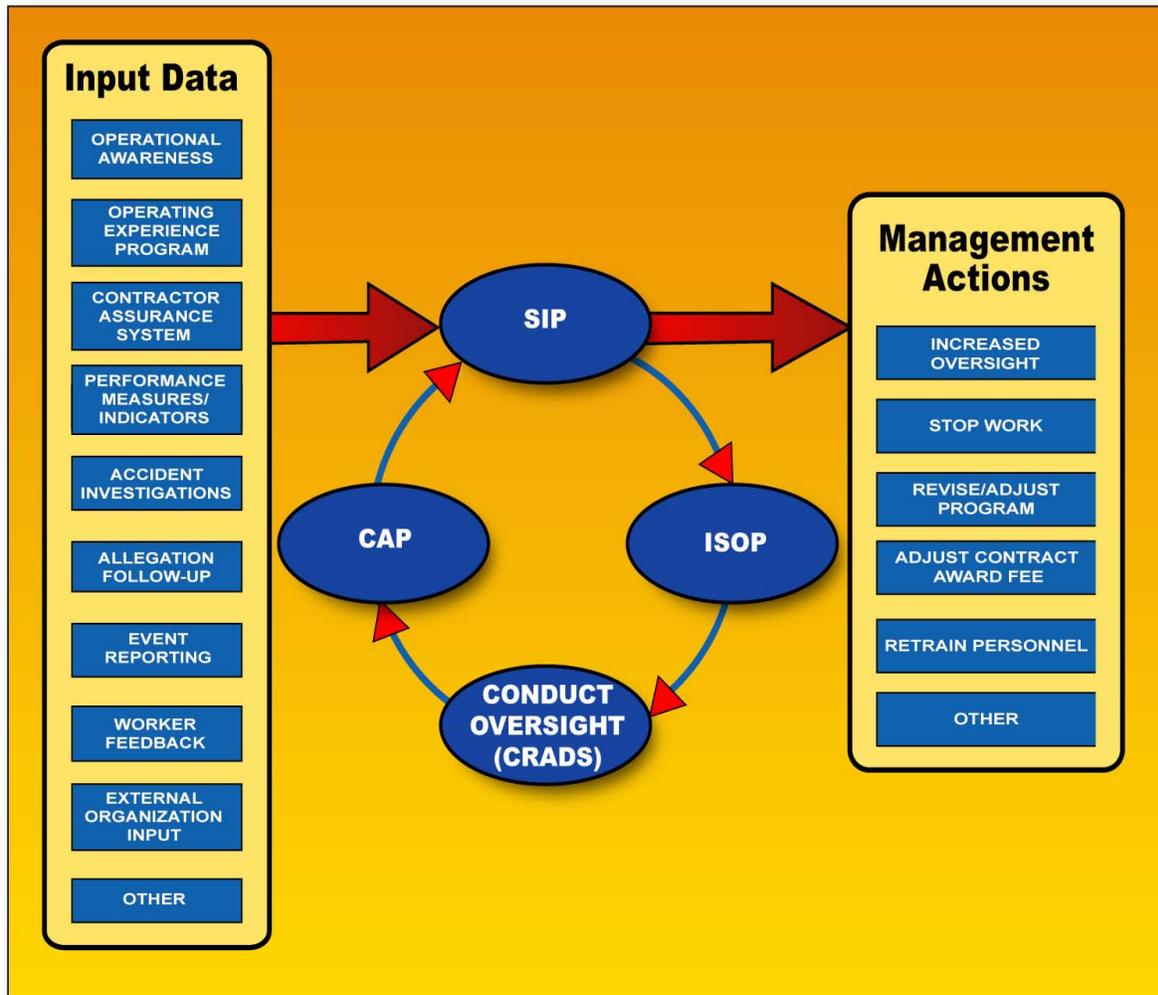
1. RESPONSIBILITIES.

- a. Program Secretarial Officers/Directors of Headquarters Organizations.
 - (1) Develop Headquarters line management oversight programs or processes that are integrated with those of the field elements.
 - (2) Assist field elements in developing and implementing DOE integrated safety oversight plans and periodically assess them for consistency and effectiveness.
 - (3) Establish safety goals as part of award fee determinations for DOE contractors.
- b. Heads of Field Organizations.
 - (1) Develop and implement DOE integrated safety oversight plans with input and assistance from Program Secretarial Officers, directors of Headquarters organizations, and the CTAs.
 - (2) Establish and implement safety information programs.
 - (3) Establish and implement corrective action programs.
- c. Central Technical Authorities (for NNSA, Principal Deputy Administrator; for ESE, the Under Secretary).
 - (1) Maintain operational awareness of the application, implementation and maintenance of nuclear safety requirements and guidance.
 - (2) Assist field and Headquarters elements in developing line management oversight programs, policies and processes.
 - (3) In concert with field and Headquarters elements, periodically review and evaluate the effectiveness of contractor assurance systems.
 - (4) In concert with Headquarters and field elements, assist in developing and implementing DOE integrated safety oversight plans.
 - (5) Provide timely and effective safety information to Headquarters and field elements to assure that safety priorities and vulnerabilities will be properly addressed and resolved.

- d. Assistant Secretary for Environment, Safety and Health.
- (1) Serves as the office of primary interest (OPI) for DOE M 226.1 and, upon request from line management, provides interpretations of the Manual, and safety information and technical assistance to help line management develop and implement integrated safety oversight programs consistent with the Manual.
 - (2) Acts on exemptions from the Manual.
 - (3) Ensures that safety rules and DOE directives that are assigned to EH are consistent with DOE P 226.1 and DOE O 226.1.

2. REQUIREMENTS.

- a. Overview.
- (1) DOE safety oversight is conducted in accordance with DOE O 226.1, quality assurance, and integrated safety management requirements provisions relating to: planning work, working according to plans, assessing work, and improving work by feedback and improvement.
 - (2) The Manual establishes four oversight mechanisms to ensure that oversight is conducted consistent with DOE O 226.1, quality assurance, and integrated safety management provisions —
 - (a) safety information programs (SIPs) collect, analyze and categorize safety/performance information to enhance understanding of and effective control or mitigation of risk;
 - (b) integrated safety oversight plans (ISOPs) identify, document and coordinate DOE routine safety oversight activity;
 - (c) DOE safety oversight is implemented using standardized written procedures, or criteria and review approach documents (CRADs); and
 - (d) corrective action programs (CAPs) document, resolve, manage, and provide improvement feedback on DOE-identified safety oversight violations, deficiencies, and observations.
 - (3) The following graphic depicts how the four tools relate.



- b. Safety Information Programs. DOE field elements must develop and implement safety information programs (SIPs).
- (1) SIPs are developed and implemented in accordance with integrated safety management system (ISMS) core function 5, Feedback/Improvement.
 - (2) SIPs encourage applying experience-based knowledge to improve management decision making, work planning, and work results.
 - (3) DOE safety oversight activities generate a variety of safety/performance information (feedback).
 - (4) Sources of information include—
 - (a) the DOE Operating Experience Program,
 - (b) contractor assurance and management systems,

- (c) operational awareness activities,
 - (d) self-assessments,
 - (e) event reporting,
 - (f) worker feedback,
 - (g) issues management,
 - (h) lessons learned,
 - (i) performance measures/indicators,
 - (j) accident investigations,
 - (k) DOE Inspector General findings,
 - (l) Defense Nuclear Facilities Safety Board reports and recommendations,
 - (m) employee concerns investigations, and
 - (n) allegation follow up.
- (5) SIPs collect, analyze, and categorize historical and real-time safety/performance information.
- (6) Based on analysis and categorization of information, DOE management formulates and carries out actions (e.g., increased supplemental safety oversight, stop work, contract award fee adjustment, revised work processes and procedures, or personnel retraining) and develops ISOPs based on safety goals and objectives, safety or operational vulnerabilities, performance criteria, and risk minimization.
- (7) Regular reports are issued on periodic or as-needed bases summarizing SIP-generated conclusions and recommendations.
- (8) Where feasible and cost-effective, multiple SIPs (maintained separately by DOE contractors and DOE field elements at the same site or facility) are consolidated into a site wide system.
- (9) At sites or facilities where safety information programs do not exist, comparable programs will be developed and implemented.

- c. Integrated Safety Oversight Plan. In concert with Headquarters elements, DOE field elements must develop and implement integrated safety oversight plans (ISOPs).
- (1) ISOPs—
 - (a) are developed and implemented in accordance with ISMS core function 1, Define Scope of Work, and guiding principle 4, Balanced Priorities;
 - (b) are the integrated planning process and document for all routine DOE safety oversight; and
 - (c) serve to integrate DOE safety oversight into an efficient and effective process based on priorities and vulnerabilities.
 - (2) Developing an ISOP is a collaborative undertaking between Headquarters and field elements and uses an agreed-to standardized approach to mutually develop site-wide ISOPs.
 - (3) Field elements, with Headquarters involvement, formally document and approve ISOPs.
 - (4) ISOP development is coordinated with the CTAs.
 - (5) ISOPs can be developed for single or multiple years based on site planning and resource needs.
 - (6) ISOPs are revised and issued annually or on an as-needed basis.
 - (7) Field elements maintain ISOPs and manage ISOP processes.
 - (8) Primary input for ISOPs come from—
 - (a) routine safety oversight as defined in Chapter III, paragraph 2d(1);
 - (b) routine baseline functional area CRADs (Appendix A);
 - (c) applicable DOE directives, DOE safety regulations contained in the Code of Federal Regulations, and other binding contractual/legal sources;
 - (d) line management direction or guidance;
 - (e) SIP evaluations and reports; and
 - (f) contractor evaluations and reports.

- (9) Activities considered for inclusion in an ISOP are prioritized against agreed-to parameters—
- (a) the time since the system, program, facility, or activity was last evaluated and the results of that activity;
 - (b) significant changes in a system, program, facility, or activity (for example, change of site/facility managing contractor, transfer of site/facility ownership from one DOE program office to another, modifications to systems or operations, or cessation of operations);
 - (c) output from a SIP that warrants additional oversight (for individual and systemic problems identified in oversight assessments, operational awareness activities, self-assessment results, event reporting, worker feedback, issues management, lessons learned, performance measures/indicators, accident investigations, DOE Inspector General findings, employee concerns investigations, and allegation follow up);
 - (d) safety consequences if a system, program, facility, or activity subject to oversight should fail and the likelihood of that failure;
 - (e) areas of special management interest or priority;
 - (f) output from contractor assessments or management system oversight; and
 - (g) third-party certifications or registrations with potential to lessen the relative importance of an oversight activity.
- (10) Prioritization results in an annual or as-needed update to the oversight baseline that reflects periodic changes in individual site/facility mission, life cycle, risks, safety performance, vulnerabilities, and operational weaknesses.
- (11) Not all baseline functional areas listed in Appendix A exist at or are applicable to all DOE sites or site activities (e.g., not all DOE sites have laser operations or have facilities that require nuclear maintenance).
- (12) Management must document the basic rationale for excluding baseline functional areas (see Appendix A) from the annual ISOP.
- (13) DOE ISOPs are coordinated with the contractor to search out potential efficiencies through coordination and collaboration.
- (14) At sites or facilities where integrated safety oversight programs do not exist, comparable programs will be developed and implemented

consistent with the nature and complexity of site missions and operations, and DOE safety management functions and responsibilities at the site.

d. DOE Safety Oversight Program and Criteria and Review Approach Documents (CRADs).

Safety oversight is a way to be aware of and understand the state of safety at DOE facilities, identify shortcomings, and ensure that they are resolved. DOE safety oversight is developed and implemented in accordance with ISMS guiding principle 1, Line Management Responsibility for Safety, and core function 5, Feedback/Improvement; and QAP program criterion 3, Quality Improvement, criterion 5, Work Processes, criterion 8, Inspection and Acceptance Testing, criterion 9, Management Assessment, and criterion 10, Independent Assessment.

DOE conducts routine and reactive safety oversight.

(1) Routine Safety Oversight.

(a) Routine safety oversight—

- 1 is planned, systematic, and scheduled, being characterized by repetitive cyclic oversight activity;
- 2 is performance-oriented first and compliance-oriented second;
- 3 maintains ongoing assurance of the adequacy and effectiveness of DOE and contractor performance;
- 4 includes assessments, self-assessments, reviews, evaluations, inspections, tests, checks, surveillances, appraisals, audits, personnel interviews, and operational awareness activities (e.g., walkthroughs, work observation, document reviews, meeting attendance and participation, and routine interaction with DOE contractor workers and management); and
- 5 documents goals and objectives in CRADs and uses CRADs in a graded approach.

(b) CRADs are developed and maintained either by the DOE Office of Primary Interest (OPI) that has responsibility for establishing policy, requirements and standards in the particular functional area or by DOE line management organizations in collaboration with OPIs.

- (c) Routine safety oversight is comprised of baseline functional areas (e.g., vital safety systems, criticality safety) that must be considered for inclusion in the ISOP at least every 3 years based on site missions and activities.
- (d) Routine safety oversight should be based largely on performance at a site or facility and conducted in baseline functional areas where performance is weak or not demonstrated or where vulnerability may exist.
- (e) The rationale for the routine baseline functional areas selected for any site, facility or activity oversight must be documented and justified.
- (f) Appendix A specifies CRADs² associated with each routine baseline functional area, but not all CRADs may be applicable and appropriate for site oversight activities and thus may be excluded from ISOPs with a stated rationale.

(2) Reactive Safety Oversight³

- (a) Unlike routine oversight, reactive oversight is conducted in response to an event, condition, special request, or emerging safety issue. Examples are—
 - 1 follow-up on an allegation;
 - 2 response to an incident, accident, or unusual event impacting safety;
 - 3 investigation of an employee concern;
 - 4 technical assistance from subject matter experts in response to an event, condition, or request; and
 - 5 diagnostic evaluation of declining operational performance.
- (b) Because of its unanticipated nature, reactive safety oversight is not included in the ISOP.
- (c) The results of reactive safety oversight are reported and tracked in the CAP and included in the SIP.

² Many DOE Headquarters and field elements have developed their own safety oversight procedures. Upon demonstrating equivalency in terms of subject matter and technical content, these organizations may opt to use their procedures in lieu of the CRADs in Appendix A.

³ Reactive oversight is synonymous with “for-cause” oversight.

- (d) Reactive safety oversight uses the CRADs in Appendix A, accompanied by other more specialized one-of-a-kind plans and procedures developed on a site-by-site or program-by-program basis.
- e. Corrective Action Program. DOE elements that conduct oversight must develop and implement a corrective action program (CAP).
 - (1) CAPs are developed and implemented in accordance with QA program criterion 3, Quality Improvement, and ISMS core function 5, Feedback/Improvement.
 - (2) CAPs document, evaluate, track, and close safety oversight violations, deficiencies, and observations⁴ identified during DOE oversight activities.
 - (3) Corrective actions associated with violations, deficiencies, and observations should be coordinated and may be integrated with violations, deficiencies, and observations identified in contractor assessments to create a site-wide CAP.
 - (4) The CAP for each violation, deficiency, or observation must identify the organization responsible for resolution.
 - (5) At minimum, the organization takes and documents the following actions for each violation, deficiency or observation—
 - (a) Determine if it is isolated or represents a systemic program or crosscutting issue.
 - (b) Identify a root cause and causal factors.
 - (c) Develop and implement clear, concise, executable corrective actions that have a measure of performance to demonstrate the outcome, can be shown as complete, and address the root cause and contributing factors to prevent recurrence.
 - (d) Identify responsible organizations and managers.
 - (e) Establish completion dates.
 - (f) Track corrective actions to closure.

⁴ It is typical that DOE-identified observations are entered into the CAP for purposes of identification and tracking only.

- (g) Confirm completion.
 - (h) Provide assurance that corrective actions have been and continue to be effective in preventing recurrence.
 - (i) Use a graded approach (e.g., the safety significance of the finding and corrective action required).
 - (j) Reenter inadequate corrective actions (e.g., have not prevented recurrence of a violation,) into the CAP.
- (6) At sites or facilities where corrective action programs do not exist, comparable programs will be developed and implemented consistent with the nature and complexity of site missions and operations, and the DOE safety management functions and responsibilities at the site.

APPENDIX A

**ROUTINE BASELINE FUNCTIONAL AREAS AND
ASSOCIATED CRITERIA AND REVIEW APPROACH DOCUMENTS (CRADS)
(HYPERLINKED)**

DOE Oversight Manual

ROUTINE BASELINE FUNCTIONAL AREA	OFFICE OF PRIMARY INTEREST
Management Systems	
Activity Level Work Control and Planning	EH/SP
Facility Representative	DR
Feedback/Improvement	EH/SP
Project Management	MA
Technical Qualification Program (DOE)	EH/RL
Facility Safety	
Documented Safety Analysis	EH
Hi-Hazard, Non-Nuclear Design	EH
Nuclear Facility Safety Basis	EH
Nuclear Facility Design	EH
Safety SSE Operability (2000-2)	TBD
Technical Safety Requirements	EH
Un-reviewed Safety Questions	EH
Safety Programs	
Conduct of Operations	EH
Criticality Safety Program	NNSA
Decontamination & Decommissioning	EH
Emergency Management Program	NNSA
Fire Protection Safety	EH
Nuclear Explosives Safety	NNSA
Nuclear Material Management	TBD
Packaging and Transportation	EM
Process Safety Management	EH
Quality Assurance	EH
Radiation Protection Program	EH
Readiness Review Program	EH

ROUTINE BASELINE FUNCTIONAL AREA	OFFICE OF PRIMARY INTEREST
Safety Programs (continued)	
Radioactive Waste Management	EM
Software Quality Assurance	EH
<u>Maintenance Management</u>	EH
Nuclear Facility Personnel Training	EH
Occupational Safety & Health	
<u>Biological Safety</u>	EH
<u>Construction Safety</u>	EH
<u>Chemical Safety</u>	EH
<u>Electrical Safety</u>	EH
<u>Laser Safety</u>	EH
Industrial Hygiene - Occupational Exposure	EH
Environmental Management & Protection	
Ecosystems and Biota	EH
Energy Management	EH
Environmental Monitoring and Measurement	EH
Environmental Remediation and Cleanup	EH
<u>Radiation Protection of the Public & Environment</u>	EH
Wild Land & Operational Fires	EH
Protection of Cultural Resources	EH
<u>Pollution Prevention</u>	EH
Site-wide Groundwater Protection	EH
Sustainable Environmental Stewardship	EH
<u>Environmental Compliance</u>	EH

Note: Functional Areas where CRADs are not developed are either under development or are being considered for development or incorporation in other CRADs.

DOE ELEMENTS TO WHICH DOE M 226.1-1 IS APPLICABLE

Office of the Secretary
Departmental Representative to the Defense Nuclear Facilities Safety Board
National Nuclear Security Administration
Office of Civilian Radioactive Waste Management
Office of Energy Efficiency and Renewable Energy
Office of Environment, Safety and Health
Office of Environmental Management
Office of Fossil Energy
Office of General Counsel
Office of Legacy Management
Office of Management
Office of Nuclear Energy, Science and Technology
Office of Science
Office of Security and Safety Performance Assurance